British Sjögren's Syndrome Association

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Candidal infection of the mouth

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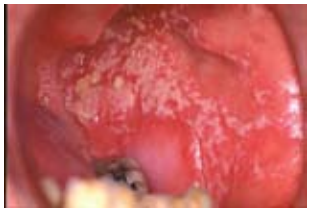
Candida is a fungus that may affect the skin or mucosal surfaces such as the mouth and vagina. It is the most common fungal infection of the mouth. There are many different candida species that can affect the mouth, the most common of which is *Candida albicans*. In general, candidal infection of the mouth is painless and there is no evidence that the infection causes systemic upset in the majority of infected individuals.

Candidal infections are often called 'thrush' as one type is considered to resemble the breast of the bird of the same name. However there are a variety of different clinical presentations in the mouth and 'thrush' is only one of these variants:

Clinical variants of oral candidal infections

Denture-associated stomatitis (chronic atrophic candidosis, denture-sore mouth)

Denture-associated stomatitis manifests as a painless red patch beneath a denture. It can also sometimes occur beneath a removable orthodontic appliance (brace). This disorder arises when the denture is worn constantly (including night time) and is not regularly cleaned. This allows candidal organisms to build up on the fitting surface of the denture and release a number of agents that cause mild inflammation of the contiguous mucosa. Denture-associated stomatitis typically involves the upper denture-bearing surface, and although sometimes termed denture-sore mouth, it is actually painless.

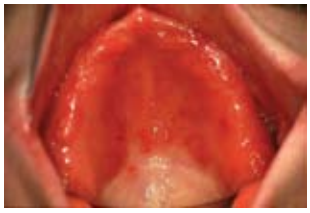


Denture-associated stomatitis on the palate of the mouth.

A reddened non-painful area under the upper denture.

Thrush (Acute pseudomembranous candidosis)

Acute pseudomembranous candidosis is often termed 'thrush'. This variant appears as white or yellow soft deposits, typically on the roof of the mouth (palate) although it may affect any part of the mouth. The underlying mucous membrane is often red (erythematous), but thrush is almost always painless.



Thrush (pseudomembranous candidosis) on the lining of a cheek.

Antibiotic induced stomatitis (acute atrophic candidosis)

This appears as a widespread reddening of the lining of the mouth and is typically sore. This may occur following the use of certain antibiotics which kill the bacteria in the mouth and allow the fungal organisms to multiply as they no longer have any competition for food sources.

Angular cheilitis (angular stomatitis)

This appears as red patches at the corners of the mouth which may be sore. The infection usually arises as a consequence of over-closure of the mouth (for example, if the dentures are very old and worn). Occasionally angular cheilitis can arise in patients who are anaemic or have a low white cell count – for example, in patients with Felty syndrome.

Median rhomboid glossitis

Median rhomboid glossitis presents as a painless, diamond-shaped red patch in the centre of the upper surface of the tongue. The patient may be unaware of its presence and it is often noticed as an incidental finding during careful clinical examination by a doctor or a dentist.

Chronic erythematous candidosis

Erythematous candidosis presents as painless red patches on the hard palate that are sometimes seen in association with median rhomboid glossitis.

Chronic hyperplastic candidosis

Chronic hyperplastic candidosis manifests as usually painless red and white patches or raised areas at the corners of the mouth. This type of candida is most common in long-term tobacco smokers and it is suggested that a small number of these infections may change with time to produce a cancer.

Chronic mucocutaneous candidosis

This comprises a group of rare disorders characterised by recurrent and/or persistent candidal infection of the mucosa and skin. The nail beds may also be involved. Affected patients can have one or more of the variants of oral candidal infection previously described. There is no association between chronic mucocutaneous candidosis and Sjögren's Syndrome.

Causes of oral candidal infections

At least half of the healthy population have candidal organisms in their mouths but do not show any signs of infection. Clinical infection occurs as a result of various local or systemic factors that allow the candida to multiply and colonise the mucous membranes.

Local factors that encourage candidal infection include:

- Dry mouth
- Denture wearing
- Smoking
- Inhaled corticosteroids (eg used to treat asthma)

Systemic factors that encourage candidal infection include:

- Diabetes
- Anaemias
- Certain medications such as corticosteroids, immunosuppressive drugs or antibiotics
- A weakened immune system

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Acute pseudomembranous candidosis (thrush) typically occurs in patients who are receiving systemic corticosteroids, systemic immunosuppressants or antibiotics. The infection arises as a result of transient suppression of the immune system or alterations in the microflora of the mouth. Thrush can also arise in patients with long-standing immune defects such as HIV disease or leukaemia and can be a feature of patients with long-standing oral dryness (e.g. patients with Sjögren's Syndrome). Median rhomboid glossitis tends to arise in patients who are long-term tobacco users, have xerostomia or long-standing systemic immunosuppression.

Candidal Infection in Patients with Sjögren's Syndrome
As a consequence of long-standing oral dryness, patients with Sjogren's syndrome are more liable to develop acute pseudomembranous candidosis (thrush). As noted previously, this is painless and most affected individuals will be unaware of having the infection. Sjögren's Syndrome also predisposes to denture-associated stomatitis and angular cheilitis, and there is the potential for the long-standing xerostomia of this disorder to also give rise to median rhomboid glossitis.

Treatment of oral candidosis

The successful treatment of candidal infections usually involves the elimination of predisposing factors as well as treatment of the fungal infection itself. For example acute pseudomembranous candidosis associated with antibiotics usually resolves when the antibiotics are withdrawn and thus does not always require treatment.

There are a variety of anti-fungal agents available, both for topical use as well as systemic use. The topical agents such as nystatin and amphotericin are not absorbed and therefore are very safe. Some of the other types of anti-fungal drugs that are used can interact with other tablets and medicines (for example anticoagulants such as warfarin and cholesterol lowering drugs such as the statins) and you should ensure your doctor or dentist is aware of your current medication.

Denture-associated stomatitis can be effectively treated by patients brushing the denture with soap and water after meals, avoiding wearing dentures whilst asleep and soaking the dentures in dilute hypochlorite solution such as Dentural or Milton solution overnight. Applying miconazole gel (Daktarin Oral Gel) to the fitting surface of the denture may also be helpful if the above measures fail to clear the infection.

Angular cheilitis usually requires the denture to be modified or replaced to return the patient's lower facial height to normal; in addition, local-acting antifungal therapies such as amphotericin B lozenges or nystatin pastilles should be sucked four times daily, and miconazole gel applied to the areas of redness at the corners of the mouth.

Median rhomboid glossitis and chronic erythematous candidosis can either be treated with topical antifungal agents such as nystatin or amphotericin, or systemic drugs such as fluconazole.

Chronic hyperplastic candidosis is often difficult to manage with antifungal therapies alone and thus often warrants excision of the affected areas. Patients with chronic hyperplastic candidosis should be advised to reduce or stop any tobacco-smoking habit.

Summary

As a result of dry mouth and in some cases, medication, patients with Sjögren's Syndrome are more liable to develop acute pseudomembranous candidosis, denture-associated stomatitis, angular cheilitis and median rhomboid glossitis. None of these disorders are likely to give rise to systemic upset or to be life-threatening; nevertheless, it is clearly disadvantageous to have additional infection of the mouth.

Much has been written in the press that candidal infection can cause various other manifestations, for example lethargy or ill-defined gastrointestinal upset, but there is no strong evidence that this is true. Certainly candidal infection of the mouth is unlikely to underlie any other systemic complications of primary or secondary Sjögren's Syndrome.

The following are some tips on how to minimise the risk of oral candidal infections:

- Keep the mouth clean at all times
- Do not sleep in dentures as this will encourage denture-associated candidosis
- Clean dentures after meals and soak them overnight in a hypochlorite solution (Dentural or Milton).
- Have your dentures checked by a dentist to ensure they provide the correct face height so avoiding creasing at the corners of the mouth. Such creasing will encourage angular cheilitis.
- Avoid smoking – this is a major contributory factor to developing chronic hyperplastic candidosis.